3.0 PRE-DESIGN DATA COLLECTION NEEDS

Prior to final design and construction, additional properties of the in situ soils, treatment trench backfill material, and groundwater need to be evaluated to optimize the proposed system designs and operational ranges, intrinsic attenuation capabilities through biodegradation, and baseline characterization (upgradient, impacted, and downgradient locations) for treatment performance.

SOIL PROPERTIES	ANALYTICAL METHOD
Particle-size distribution	ASTM D421-58 and D422-63
Bulk density (compaction)	ASTM D698-70 and D1557-70
Moisture content	ASTM D2216-71
Field capacity	Field Measurement
Permeability	ASTM D2434-68 and Field Measurement
pH	SW 9045B
Total organic carbon (TOC)	SW 9060 mod.
Ca, Mg, K, Na, Fe, Mn	SW 6010B
Ferrous Fe	SM 3500 Fe D

GROUNDWATER CONDITIONS	ANALYTICAL METHODS
Field Parameters	
Dissolved oxygen Redox potential (Eh) pH Temperature Specific conductance	Downhole measurement at multiple depths. Before and after purging.
Laboratory Parameters	
Target compounds: gasoline, diesel, BTEX, MTBE	WTPH-G, WTPH-Dx, EPA 8260B
Alkalinity	EPA 310.1
Nitrate, Nitrite	EPA 353.2
Ammonia @ N	EPA 350.3
Phosphate-ortho	EPA 365.1
Total Mn, Fe, Ca, Mg, Na, K	SW 6010B
Dissolved Mn, Fe, Ca, Mg, Na, K	SW 6010B
Ferrous iron	SM 3500 Fe D
Sulfate	EPA 300.0
Sulfide	EPA 376.1
Total organic carbon (TOC)	EPA 415.1
Chloride	EPA 300.0
Chemical Oxygen Demand (COD)	EPA 410.4
Biochemical Oxygen Demand (BOD)	EPA 405.1
Total suspended solids	EPA 160.2
Oil and grease	EPA 413.2
Hydrocarbon degrading bacteria	MPN, Brown 7990